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Fish Passage 2017: The New Zealand Perspective

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FISH PASSAGE 2017

THE NEW ZEALAND PERSPECTIVE



RECONNECTING WATERWAYS

MULTI-FACETED APPROACH

Coastline = 14,000km (8,700mi)
All species

Legislation

Advocacy

Research

Assessment

Mitigation

LEGISLATION

NZ Freshwater Fishery Regulation – review and enforcement

MfE – NPS Freshwater

Resource Management Act (RMA) - Consents process

Territorial Authority Plans

Guidelines (NZFPAG)

ADVOCACY

NZ Fish Passage Advisory Group

World Fish Migration Day

Whitebait Connection

NZ Post – stamps



RESEARCH

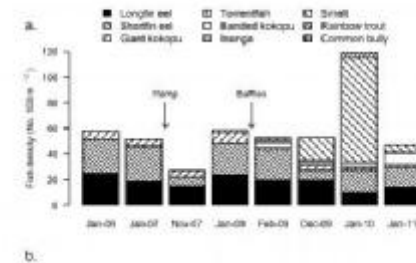
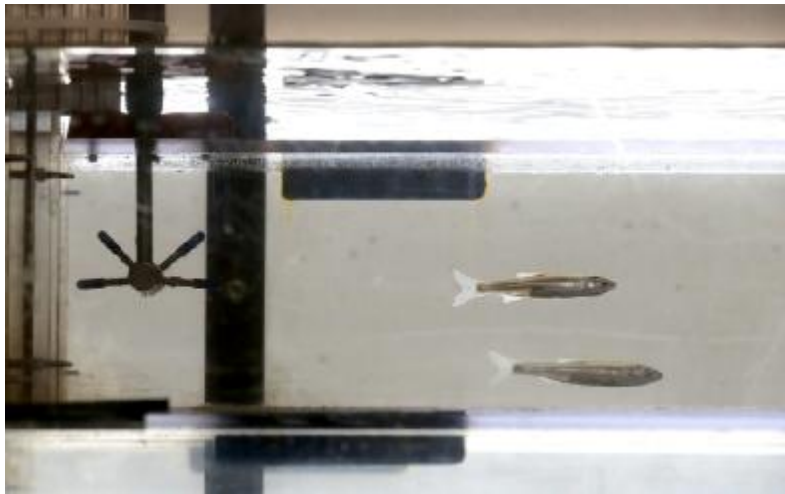
Swimming abilities

Manmade/Nature-like



Figure 1: The downstream end of the River Road culvert after retrofitting showing the rock ramp. Inset: Spoiler baffles inside the culvert. [Jacques Boubée]

Subsequent monitoring has shown that all the target fish species are now successfully making it past the culvert and into Bankwood Stream (Figure 2). (Franklin & Bartels 2012)



ASSESSMENT

National Database of structures in waterways

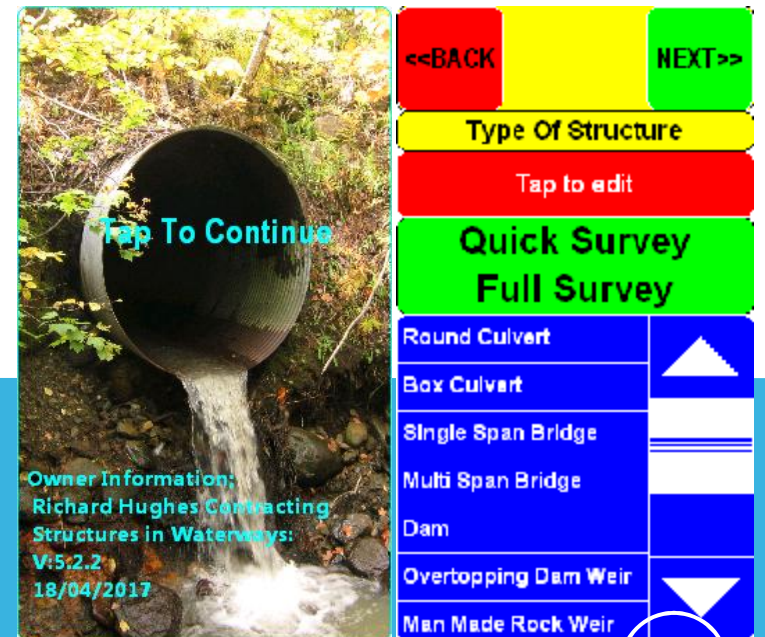
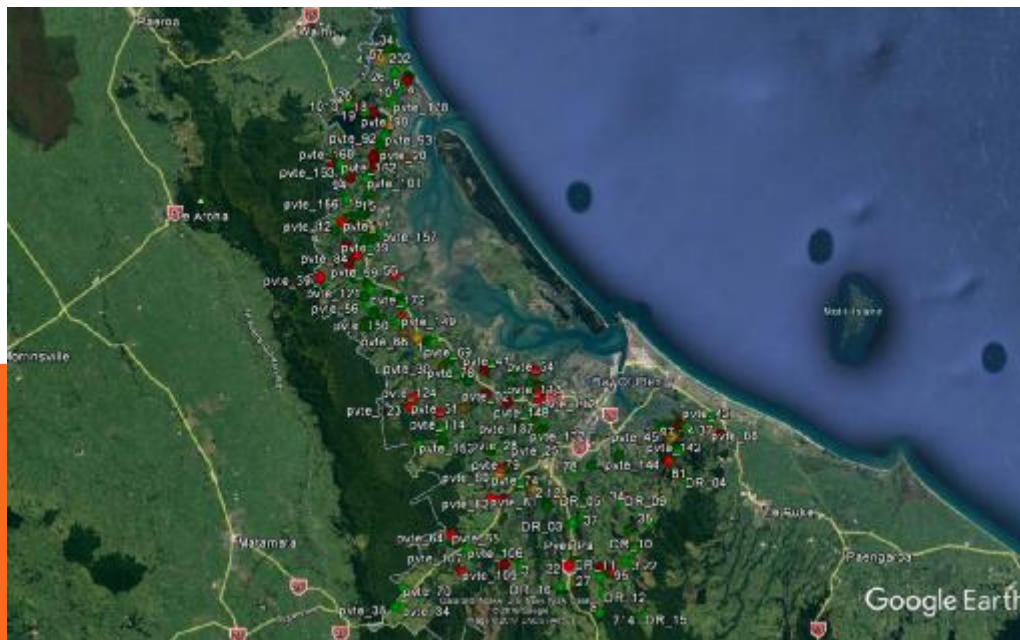
App

Objective description

Desk top

Public and private land

Culverts, tide-gates, dams/weirs under 8m



TYPICAL BARRIERS & FIXES

Perched/overhung structures

Ramps, ropes



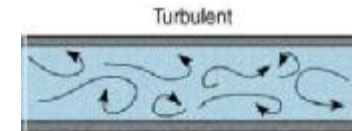
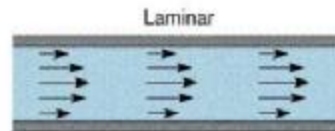
Low/shallow flow

Baffles



High-velocity laminar flow

Baffles, ropes, Tunnel-houses



Tide-gates

Fish-friendly cantilevers or complete replacement



LOW COST RETRO-FIT MITIGATION TOOLBOX

- Floating Ramps
- Culvert Baffles
- Mussel Ropes
- Fish Friendly Tide-gates
- Tunnel-houses



FLOATING RAMPS



Low cost
Robust
Self-adjusting
Different surface options



FLEXIBLE CULVERT BAFFLES

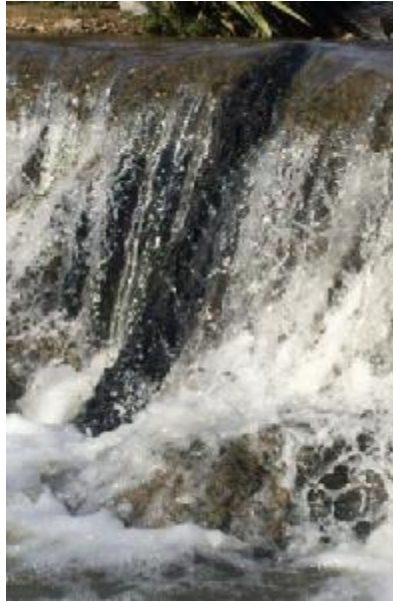
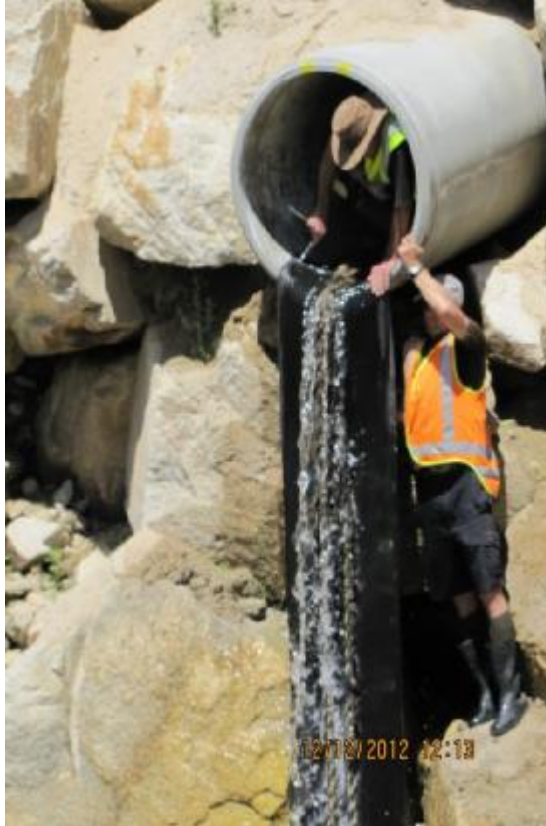


Low cost
Robust
Passage and habitat



High and low flow
Minimal loss of capacity
Extend culvert life

MUSSEL ROPES



Low cost
Robust
Perched/over hung culverts

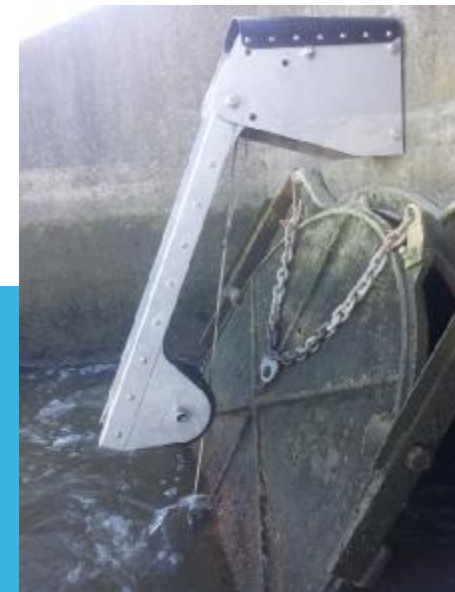
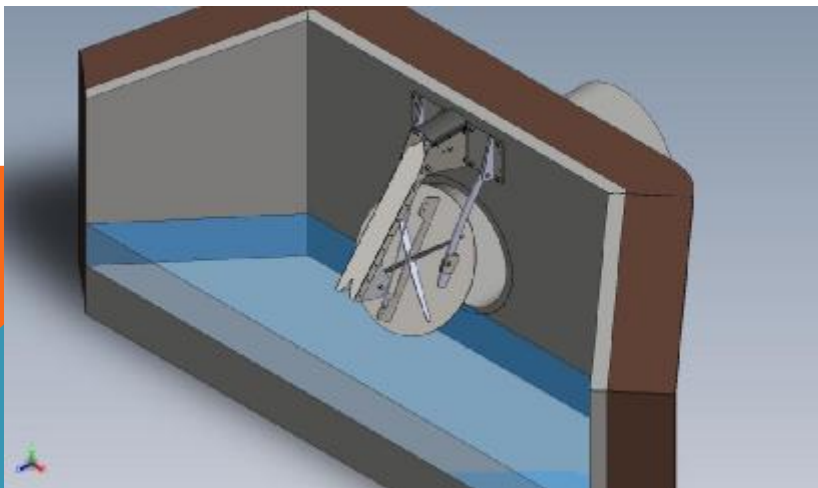
Velocity barriers
Good for small culverts where
baffles cannot be fitted

FISH FRIENDLY TIDE-GATES



Low cost
Robust
New or retro-fit

Fine adjustment
Delay closing
Lock open



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TUNNEL-HOUSES



Low cost
Robust
Passage and refuge

METHODOLOGY & COST

Two person crew with hand tools and vehicle

Culvert diameters 300mm > 3000+mm

Culvert lengths 5m > 1500m

Cost \$200 > \$20,000



BENEFITS

Low cost components

Fast install – average 10 sites/day

Minimal impact on waterway

Re-establish connectivity of waterway immediately

Permitted activity – no consent

Simply Health & Safety

No heavy machinery

No expensive design process

Modify to suit on-site

No disruption to traffic or public

WHERE TO FROM HERE?

Education through schools

Engagement with indigenous people

Continue developing robust low-cost solutions

Coordination across government departments